

**PATENT COOPERATION TREATY**

**Rec'd PCT/PTO 03 SEP 2004**

From the:  
INTERNATIONAL SEARCHING AUTHORITY

**10/506638**

**PCT**

To:

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Spruson & Ferguson  
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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference  
**9363SG24JFC**

Date of mailing (day/month/year) **15 JUN 2004**

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
**PCT/SG2004/000056**

International filing date (day/month/year)  
**16 March 2004**

Priority date (day/month/year)  
**19 March 2003**

International Patent Classification (IPC) or both national classification and IPC  
Int. Cl. <sup>7</sup> **C23C 14/50**

Applicant  
**SYSTEMS ON SILICON MANUFACTURING COMPANY PTE. LTD et al**

**1. This opinion contains indications relating to the following items:**

- |                                     |              |  |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the opinion   |
| <input type="checkbox"/>            | Box No. II   | Priority   |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention   |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited  |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application   |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application  |

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

Name and mailing address of the IPEA/AU  
AUSTRALIAN PATENT OFFICE  
PO BOX 200, WODEN ACT 2606, AUSTRALIA  
E-mail address: pct@ipaustrialia.gov.au  
Facsimile No. (02) 6285 3929

Authorized Officer  
**A. DAVIES**  
Telephone No. (02) 6283 2072

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/SG2004/000056

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/SG2004/000056

**Box No. V** Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

**1. Statement**

Novelty (N)	Claims 1-14	YES
	Claims	NO
Inventive step (IS)	Claims 1-14	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-14	YES
	Claims	NO

**2 Citations and explanations:**

Derwent Abstract Accession number 96-249092/25 Class L03

JP 08102443-A (TOSHIBA KK) 16 April 1996

This citation represents the closest art that could be found. Rather than use a coarse surface of a film a sand blasting process is used to polish a wafer mount board.

The claimed invention is consequently considered novel and inventive.

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## Derwent Record

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Derwent Title: Support of semiconductor wafer used in vapour phase growing appts. - in which sand blasting is applied so that surfaces of wafer mount board, cylinder and reaction tubes are of specified thickness

Original Title: ☒ JP8102443A2: SEMICONDUCTOR WAFER SUPPORT BASE AND VAPOR GROWTH DEVICE

Assignee: TOSHIBA CERAMICS CO Standard company  
 Other publications from TOSHIBA CERAMICS CO (TOSF) ...  
 TOSHIBA KK Standard company  
 Other publications from TOSHIBA KK (TOKE) ...

Inventor: None

Accession/Update: 1996-249092 / 199625

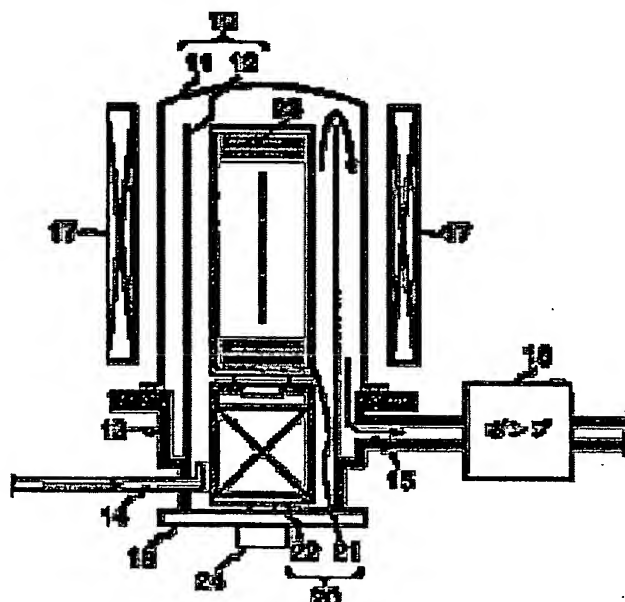
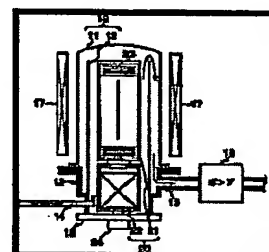
IPC Code: H01L 21/205 ; C23C 16/46 ;

Derwent Classes: L03; U11;

Manual Codes: L04-D01(Vapour deposition apparatus) , U11-C09B (Chemical vapour deposition appts.) , U11-F02A2(Jig holders for handling wafers within processing appts.)

Derwent Abstract: (JP8102443A) A sand blast processing is applied so that surfaces of a wafer mount board, a warmth-keeping cylinder, a reaction outer tube, a reaction inner tube are 0.2-4μm in a mean surface coarseness, and 20-100μm in a mean interval between surface coarseness.  
 Use - For improving an attachment force of a film to a surface of parts and for preventing peel-off of the film.



Images:



Dwg.1/4

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Family:

PDF  Pub. Date Derwent Update Page  Language IPC Code  
☒ JP8102443A \* 1996-04-16 199625 5 English H01L 21/205  
Local appls.: JP1994000236710 Filed:1994-09-30 (94JP-0236710)  
.....

Priority Number:

Application Number	Filed	Original Title
JP1994000236710	1994-09-30	SEMICONDUCTOR WAFER SUPPORT BASE AND VAPOR GROWTH DEVICE

Title Terms: SUPPORT SEMICONDUCTOR WAFER VAPOUR PHASE GROW  
APPARATUS SAND BLAST APPLY SO SURFACE WAFER MOUNT BOARD  
CYLINDER REACT TUBE SPECIFIED THICK

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(19)

(11) Publication number:

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# PATENT ABSTRACTS OF JAPAN

(21) Application number: 06236710

(51) Intl. Cl.: H01L 21/205 C23C 16/46

(22) Application date: 30.09.94

(30) Priority:

(43) Date of application  
publication: 16.04.96(84) Designated contracting  
states:(71) Applicant: **TOSHIBA CERAMIC  
TOSHIBA CORP**(72) Inventor: **KASAI YOSHIO  
MATSUYAMA TOYO  
MIKATA YUICHI  
OGINO HIROSHI  
UMETSU YOSHIMI  
AOKI MASARU**

(74) Representative:

## (54) SEMICONDUCTOR WAFER SUPPORT BASE AND VAPOR GROWTH DEVICE

(57) Abstract:

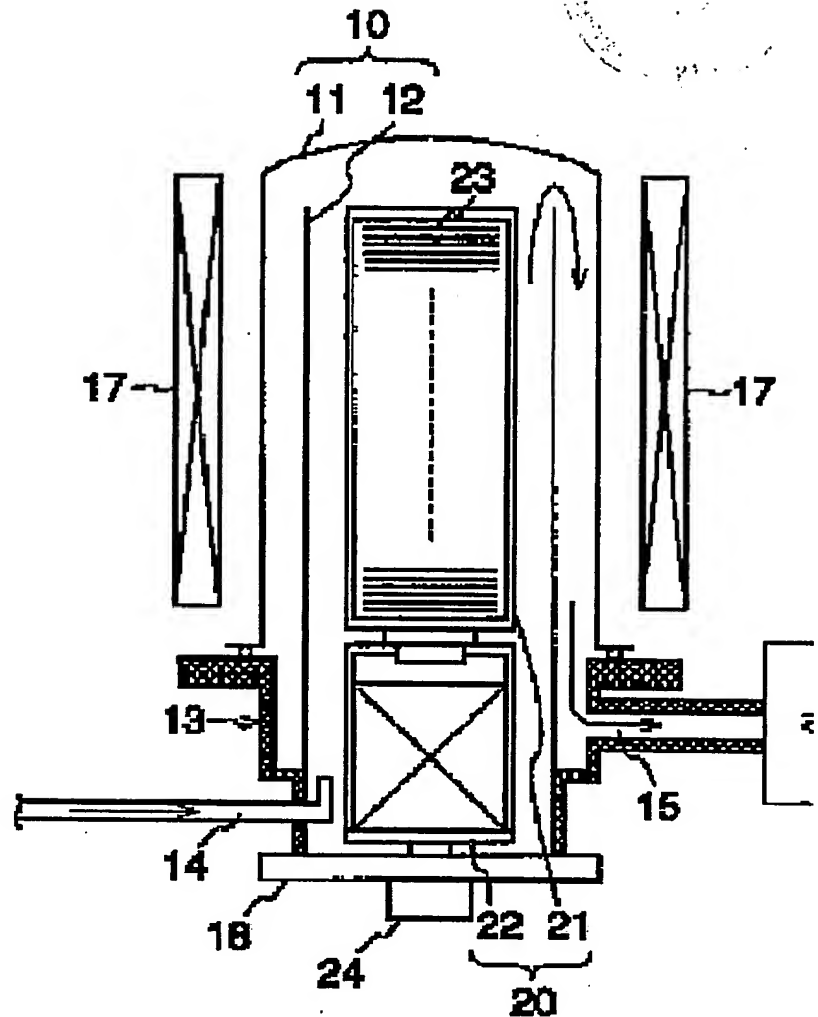
**PURPOSE:** To provide a semiconductor wafer support base of a structure, wherein in the case where a B-containing amorphous Si film is deposited on semiconductor wafers at a comparatively low temperature and at a low pressure, the adhesive force of a film on the surfaces of components to be used is improved, the peeling of the film is made hard to cause and the wafer support base can be used without preventing the generation of dusts, and a vapor growth device using that semiconductor wafer support base.

**CONSTITUTION:** The respective surfaces of a wafer placement use boat 21, a heat insulating cylinder 22 for supporting the boat 21 and reaction outer and inner tubes 11 and 12 for housing these of the boat 21

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and the cylinder 22 are subjected to sandblast treatment in such a way that the mean surface roughness  $R_a$  of the surfaces is 0.2 to  $4\mu\text{m}$  and the mean interval  $S_m$  between the surface roughnesses of the surfaces is 20 to  $1000\mu\text{m}$ .

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